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Conference Abstract

Practical Considerations for Implementing Species Distribution Essential Biodiversity Variables

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Abstract

Species Distribution Essential Biodiversity Variables (SD EBVs; Pereira et al. 2013, Kissling et al. 2017, Jetz et al. 2019) are defined as measurements or estimates of species' occupancy along the axes of space, time and taxonomy. In the "ideal" case, additional stipulations have been proposed: occupancy should be characterized contiguously along each axis at grain sizes relevant to policy and process (i.e., fine scale); and the SD EBV should be global in extent, or at least span the entirety of the focal taxa's geographical range (Jetz et al. 2019). These stipulations set the bar very high and, unsurprisingly, most operational SD EBVs fall short of these ideal criteria. In this presentation, I will discuss the major challenges associated with developing the idealized SD EBV. I will demonstrate these challenges using an operational SD EBV spanning ~6000 species in the United Kingdom (UK) over the period 1970 to 2019 as a case study (Outhwaite et al. 2019). In short, this data product comprises annual estimates of occupancy for each species in all sampled 1 km cells across the UK; these are derived from opportunistically-collected species occurrence data using occupancy-detection models (Kéry et al. 2010). Having discussed which of the "ideal" criteria the case study satisfies, I will then touch on what are, in my view, two underappreciated challenges when constructing SD EBVs: dealing with sampling biases in the underlying data and the difficulty in evaluating the extent to which they bias the final product. These challenges should be addressed as a matter of urgency,

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as SD EBVs are increasingly applied in important settings such as underpinning national and international biodiversity indicators (see e.g., https://geobon.org/ebvs/indicators/).

Keywords

ideal vs minimal requirements, bias

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